OckamSoft™ 4.0
Control & Display Program Suite
for Windows & PocketPC

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What is OckamSoft 4?

Congratulations, and thanks for considering OckamSoft 4. As with previous versions, OS4 is a set of program modules, any or all of which may be run at the same time. With the advent of the wireless PDA, OS4 has been extended to serve more than one processor. For example, the racecourse program is now a server, allowing PDAs to display and control the race.

The components of OS4 include:

OckamSoft 4

1. **Racecourse** – a chart plotter that includes features specifically for sailboats including time to laylines, wind arrow, polar with targets and Vmc, summary report and more.

2. **Display** – a window of 1 to 16 panes that show instrument values. The panes arrange themselves, allowing vertical or horizontal orientation. You can activate multiple display windows.

3. **Stripchart** – a graphical plot of up to 4 instrument functions vs. time. The time scale can be set from 5 minutes to 3 hours. You can activate multiple stripchart windows.

4. **Eye** – an application for the wireless PocketPC, which provides on-the-rail display, stripchart and instrument control functions.

5. **VPort** – a virtual serial port that supplies NMEA data already present in the Ockam data stream to an application that would normally be expecting its own dedicated serial port connection to a NMEA data source (i.e. GPS).

6. **NMEAXLT** – (translator) provides an alternative source of data derived from a NMEA source instead of the normal Ockam instrument system. The normal functionality of OS4 is drastically impaired, but it is sufficient to run a chart plotter without an Ockam system.

7. **OS4 EtherServer** – the glue that binds the components of OS4 together. Provides many services that simplify access to data and control of the instruments.

8. **Goodie bag** – a collection of sample charts, applets, demos, source code, header files, etc. Someday we may completely enumerate them, but not right now.
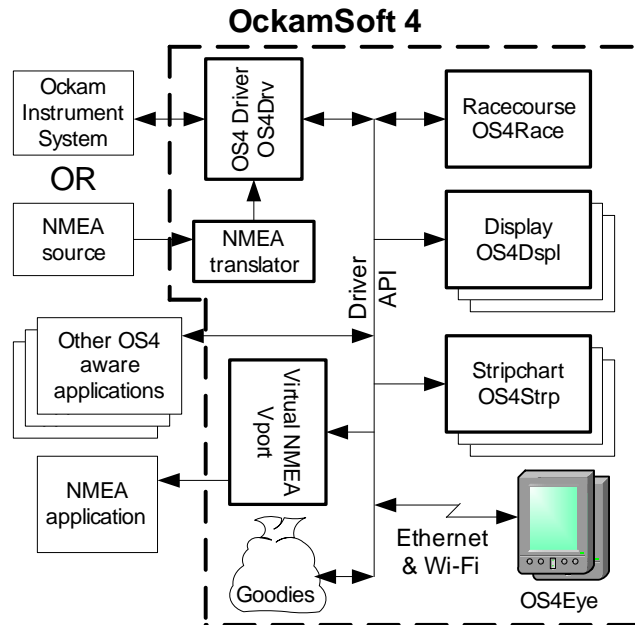
Installing and Setting up OS 4

OckamSoft 4 is distributed as try-ware; Download it off our website, get a CD free for the asking, or copy it off a friend's PC (not recommended because the shortcuts will not be copied; but a determined geek can do it). After installation, some of the components will run for a limited time (i.e. as a demo), then quit until registered. So, try them out, and only buy (register) those items you need.

OckamSoft 4 is designed for Windows XP or 2000, and requires a network connection (either WiFi or Ethernet) and a serial port. Earlier versions of windows can't run Vport, and there may be other issues involving network protocols.

1. Install the software.

   a. 7 applications and a number of support files are copied to \Program Files\OckamSoft 4 (or a directory you specify) on your hard drive. For a complete description, see List of Files at the end of the manual.

   b. Your start menu will contain the OckamSoft 4 program group with 9 shortcuts for starting the various applications.

   c. A shortcut Start OS4 is added to your desktop.

2. Establish communications between your computer and your Ockam system.

   a. Connect the instrument system to your computer and turn it on.

   b. Use a terminal emulator (see Using HyperTerminal at the end of the manual) to establish the parameters of your serial connection to the instruments. If the baud rate is 4800 or lower, we recommend changing the settings of the interface to 9600 baud or greater. This will increase the bandwidth to accommodate both Ockam and NMEA data. Once you have the correct settings, exit HyperTerminal.

   c. Start the Driver application Start, All Programs, OckamSoft 4, Driver. Right-click on the driver icon that appears in the tray near the clock, Settings.

   d. Select the Comm port tab and set the serial port and settings determined in (b).

   e. If your RS232 interface is revision C (black box), you should check Limit output rate. Revision D (gray box) interfaces and the T1 serial port do not need limiting.

   f. Don't check Use frame checksum unless you know you need to.

   g. Check Enable NMEA input and Enable data on Ethernet.

   h. On the Status tab, Frames Received should be counting up.

   i. On the Variables tab, check that you are receiving sensible data. In particular, you should check receipt of Lat/Lon.

   j. While you have the driver dialog up, familiarize yourself with the other important tabs.

BIFs	(Built-in functions) calculate and output high-level functions to the instrument system.
Control	Send various commands to instrument system, e.g. setting averages and options, controlling the stopwatch, etc.
Magnums	Switch all your remote displays (Magnum & Matryx) to various modes you create, such as Prestart, Windward, Downwind, etc. They can also be set to automatically switch based on stopwatch and true wind angle.
Polar	establishes the polar to be used on your machine.

3. Set up the multi-start application, which is a small application used to start all your OS4 applications with a single click.

4

a. Run the MultiStart application in setup mode Start, All Programs, OckamSoft 4, MultiStart (Setup).

b. Check the desired applications. Display and Stripchart can have multiple instances (more than one window open at the same time). If you desire this, change the count in the associated text box.

c. Press Start Now. The various OS4 applications should start.

d. Drag and resize the applications as desired, then close them. The next time they come up, they should be in the same arrangement.

4. We strongly suggest installing a polar file specifically designed for your boat. OS4 depends heavily on polar information including tacking angles and time to laylines.

a. Obtain the polar files (see http://www.schwenn.com/) and install them on your hard drive.

b. OckamSoft 4 uses the TPO file type. If you have to convert from WKS to TPO, start the Convert Polar application, Browse, locate the WKS file, and press Convert.

c. Open the driver (see 2c above), click on the Polar tab and press Select. A standard file dialog appears. Find and select the polar TPO file.

5. If you plan to use charts…

a. Obtain MapTech charts (http://www.maptech.com/) and install them on your hard drive.

b. Start the racecourse application Start, OckamSoft 4, Racecourse.

c. Select a chart (see Selecting a chart below).

d. If you selected a chart without the boat on it, you can force the chart to become visible by clicking View until the [Chart] mode is selected. Then you can scroll around the chart by clicking on the new chart center.

e. Confirm the ship's position is correct.

MultiStart

This application (file OS4Start.Exe) eliminates the multiple mouse moves needed to start the various OS4 applications.

You will notice that there are two shortcuts in the Start Menu, OckamSoft 4 group; MultiStart (Setup) and MultiStart (Execute).

The difference is in the shortcut's command line argument. If OS4Start is executed plain, it comes up in Setup mode, where you can check and uncheck, change number of instances etc. Pressing the Start Now button starts the selected OS4 applications, and OS4Start quits.
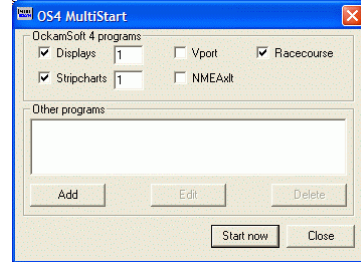
If the command line contains 'auto', the application starts the selected applications immediately and quits, never becoming visible. This is the mode for MultiStart (Execute), and the shortcut on the desktop.

You can specify other files to execute by dragging (or Adding) them to the Other programs window.

Registering OS4 components

When you register an OS4 application, the application runs normally, rather than time out. You supply the application name, revision, Uplink code, PC or PDA description and a credit card, and receive back an Unlock code. After the code is entered and accepted, the program is registered.

Registration keys the application to the specific computer on which it was running at registration time. If the PC or PDA becomes disabled, you will have to re-register.

Racecourse

Titlebar

Menubar

Toolbar

OlympicFCB Leg 4 [All]

Chart   Course   View   StatusBar   Help   Launch

Chart | Zoom+ | Zoom- | View | Sidebar | OlympicFCB ▾ | Leg

WPr/b 241° 0.68
Wmark
RB: 264°0.64 tag ×
SLL: 05:27
VmcCrs=267°
PLL: 02:00
Wing
OriginCB
FloatPin

Sidebar
(Stbd layline selected)

Port layline
(2 min. away)

Wing mark
with 3-boat circle

Wind arrow
(showing big lift)

Polar

Targets (4)

Statusbar

CURS: 0.80,215°

Chart off | Auto | Up 224°

'Lollypop'
(shows wpt r/b)

Wdwd mark

Laylines

Range&Brg
(264° 0.64 mi)
being displayed
on tag 'x'

Vmc course
(267°)

Boat arrow

Ladder-rung

Rhumbline
(Leg 4)

Trail

Starting line
(Committee boat
is the origin)

This view (chart turned off, autoscaled and oriented to optimize display of the racecourse) shows many of the features that differentiate OS4 from other chart plotters.

Features of the Racecourse Screen

Feature	Description	Control
Statusbar	Shows the state of the chart, scale and orientation, and Cursor range and bearing, Lat/Lon or Ships position.	Cursor RB/LL: Statusbar menu
Sidebar	Lists the various points of interest and provides a way for touchscreen PCs (which have no right-click capability) to access individual items for editing, deleting etc.	Location: Toolbar or Chart menu, Sidebar
Chart background	May be switched on and off and scaled in 6 steps between 10 and 200%. When enabled, window orientation is always True North Up. When disabled, window orientation is Course up.	Open: Chart menu Zoom: Toolbar Show/Hide: Toolbar
Boat arrow	Displays heading and speed, and relative-to-target speed	View & color: Course menu, Settings
Wind arrow	Displays wind direction and speed, and relative-to-average	View & color: Course menu, Settings
Laylines	Shows estimated time to tack for the mark on both tacks. Current effect can be included.	View & color: Course menu, Settings. With current:
Rhumbline	Indicates the beginning and end of the current leg.	View & color: Course menu, Settings

Ladder-rung	Otherwise known as the "ahead-behind" line. On free legs, the ladder-rung is perpendicular to the mark bearing. On up and downwind legs, the ladder rung is perpendicular to the true wind.	View & color: Course menu, Settings
Lollipop	Shows where instrument Waypoint R/B is pointing.	Course menu, Settings
Boat range rings	Centered on the boat. Radii can be miles, minutes or boatlengths.	Course menu, Settings, Polar&Rings tab.
Waypoint ring	Waypoints can have a single ring with specified radius and unit of measure.	Sidebar, Edit
Polar overlay	Shows ships performance and either Vmc angle or Wallys.	Course menu, Settings, Polar&Rings tab.
Trail	Shows the ships track over specified time.	View & color: Course menu, Settings, Features tab. Length: Course menu, Settings, Other tab.
Notes	Post-it notes stuck to the chart.	Create: Click on chart. Delete: Click on Sidebar pane.
RBs	Post-it notes showing range & bearing from current position. There can be multiple RBs, and one of them can be output to the instruments.	Create: Click on chart. Delete: Click on Sidebar pane. Output: Click on Sidebar pane.
Course Information	Shows leg times for the current course. Includes "What if?" ability to change the wind and current. Leg times can be delta, cumulative or real-time.	Course menu, Info

Toolbar buttons

Chart	Turns the chart background on and off.
Zoom+	Changes chart scale to show more detail.
Zoom-	Changes chart scale to show less detail.
View	Selects 1 of 6 views described in detail below.
Sidebar	Switches the sidebar from side to side and top to bottom.
Course	Selects which course to use.
Leg	Switches the current leg to the next nark

Keyboard Shortcuts

Ctrl+F	Displays the Course Information dialog.
Ctrl+I	Zooms the scale in (more detail).
Ctrl+O	Zooms the scale out (less).
Ctrl+N	Selects the next mark.
Ctrl+V	Selects the next view
Ctrl+T	Turns mark text on and off
Ctrl+U	Turns the chart background on and off

Chart Views

When a chart is open and enabled, the Views available are:

Center boat   scrolls the boat to the center at all times.

All marks	attempts to scroll the boat and all marks into view. If not possible at the current scale, Boat & Next is attempted.
Boat & Next	attempts to scroll the boat and next mark into view. If not possible at the current scale, the boat and as much of the laylines as possible are scrolled into view.
Manual	allows you to scroll the chart by left-clicking a point that becomes the new chart center.
Chart	similar to manual except the chart center remains on the currently open chart.
Starting Line	draws laylines from the two ends of the starting line. If the chart is off, the window scales to include the line and the boat only.

When no chart is in use (i.e. not open or disabled), the racecourse is always scaled to fit the screen. The racecourse is oriented with the windward leg up and scaled appropriately for All, Boat & Next and Starting Line. Manual and Center Boat are inoperative.

Selecting a chart

Pull down the Chart menu and select Open. The chart selection dialog has access to information on the charts currently in the chart database, including charts that might not be on the PC at present (e.g. maybe they're on a CD that's not inserted). If the heading says that no charts are available, go to Maintaining the chart database below.
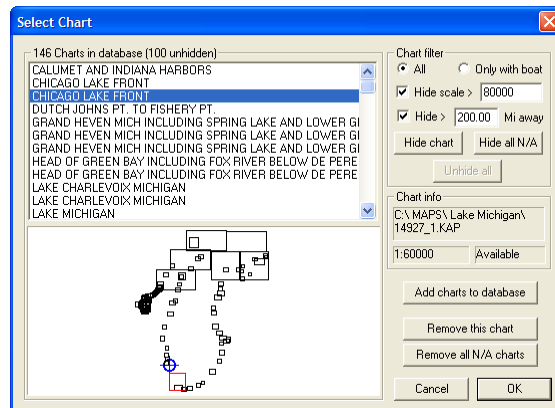
There are filter controls that let you view a subset of known charts by position, scale and whether or not the chart is available. In the screenshot, you will notice that large scale charts (>80000), and distant charts (>200 miles away) are filtered out, but "Only with boat" is not selected. With these settings, of the 146 known charts, OS4 is showing the 100 that meet the filter criteria. Turning "With Boat" filter on would hide most of the charts, showing only those that the boat is actually on.

Once the filter is set as desired, you then more easily select a chart by its title (e.g. "Chicago Lake Front" #14927), or graphically (the red square). The boat position is shown by the blue X. Note the text boxes that list the chart filename, scale and whether or not the chart is available. If the chart IS available, press OK. Otherwise you might have to insert the appropriate CD first.

Maintaining the chart database

Opening charts is a two-step process. First, charts are entered into the chart database. Then, those charts that have been entered are shown for selection. When you first run Racecourse, you must add charts to the database.

To add charts, press Add charts to database. A standard "File Open" dialog appears, allowing you select charts to be added. The chart types include scanned charts available from Maptech. You can select multiple charts using the shift and control keys.

The Remove this chart and Remove all N/A charts (all charts which are currently not available) buttons allow maintaining the chart database.

Selecting a Course

In Racecourse, there is ALWAYS a course running. You can only change the parameters.

1. Open the Course properties dialog (Course menu, Adjust…), and select the course from the Name droplist.

2. If you are near the origin, press the Here button to move the origin to where you are. Otherwise, the origin will be the last place the course was.

3. Check the Key bearing. If the first mark is a "floater", the wind direction will have been filled in. If the mark is "fixed", the current bearing will have been filled in.

4. If the windward leg length will be longer or shorter than 1 mile, fill in the leg length.

5. Press OK.
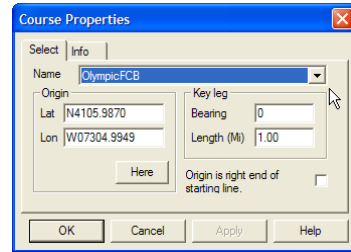
If the origin, bearing and scale are OK, you can change the course type using the droplist on the toolbar. If there is a chart open, you can also click on the chart to move the origin.

How courses work

In OS4, a course consists of a name, a set of waypoints and a route list. The waypoints define the origin, starting line and rounding marks. The route list defines the order the waypoints will be rounded. In addition, a course has a Bearing and Scale. These attributes are used to define the position of any of the waypoints that are floaters.

Waypoints have a position and an icon (amongst other attributes). The position can be either Fixed (just a Lat/Lon) or Floater (defined as a range & bearing relative to the origin of the course).

For example, the default *Wmark* waypoint is defined as 1 mile from the Origin, 0º from the course bearing. When you select a course, and specify a scale of 1.5 and bearing of 220, Wmark would then positioned 1.5 miles at 220° from the origin.

The origin waypoint defines the position of all other floater marks; therefore it must be fixed type. It also defines one end of the starting line; the start mark defines the other.

Oftentimes, the course origin is a government buoy, and the committee boat positions itself relative to it. The standard waypoint C/B is defined as 0.1 mile from the origin and 90° from the course bearing. Selecting the course would put the C/B mark 300 yards 310° from the pin.

Creating a Course

Because of the checks that are made along the way, you can't edit a course; only delete then create. Creation is via a wizard-style dialog. Select the Course menu, Create...

1 Select the waypoints that will constitute your course.
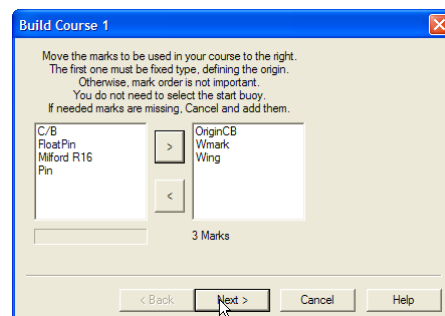
The first waypoint must be fixed type; a floater is defined relative to the origin, so the origin must be somewhere real.

You do not need to select the start waypoint (the waypoint at the other end of the starting line from the origin). That one will be specified in the next step.

If you need a waypoint that isn't on the list, you must cancel and add it, then start again.

When the list is correct, press Next.

2   Note than the origin mark is listed.

Select the start mark. This is usually a floater type, but some clubs have senior grade race committees where the "pin" is moved instead of the committee boat (as in this case). Also, some races use starting lines where both ends are fixed.

Press Next.

3   In this step, you specify the order of rounding.

Note! be careful not to have zero length legs! Check that no adjacent Waypoints have the same name, and that the Origin mark isn't the same as the first Mark.

Name the course, then press Finish.
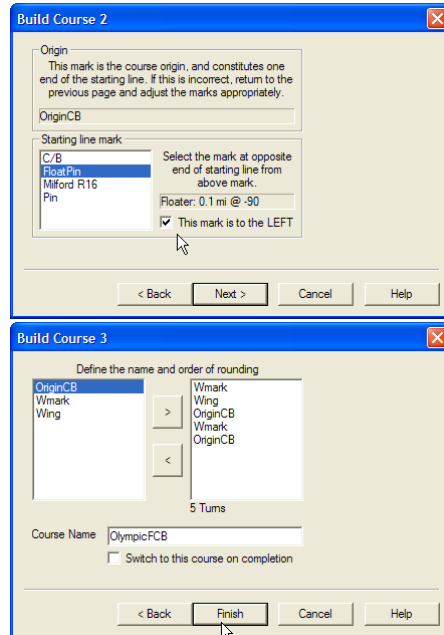
Adding Notations

You can add notations (i.e. comments located at a desired Lat/Lon), Range/Bearings (a note that shows the range and bearing from the boat, and can also include a comment) or Waypoints (normally added via the Edit Waypoints dialog) to your racecourse.

Right-click the mouse at the location where you want the note, range/bearing or Waypoint. Select the type of note, optionally fill in the comment, and if desired, modify the position textboxes.

To remove a note or range/bearing, left-click the comment box and press the Del key. All notes and range/bearings can be removed by selecting Delete all Notes from the Display menu.

The Racecourse application displays a overhead view (map) of the racecourse and the boat. If you have Resolution Mapping charts of the area, they may be included in the view.

Edit Waypoints

Allows modifying, deleting or adding waypoints.

To Delete a Waypoint, select the waypoint from the list and press Delete. You can't delete a waypoint if it's in use by any course on file.

To create a new waypoint

1.   Press New, and type in the appropriate name.

2.   Proceed to Modify a waypoint, step 2.

3.   You can also right-click on the chart to place a waypoint by eye, then proceed below to adjust the waypoint.

To Modify a waypoint

1. Select the waypoint from the list and press Modify. You can't change any waypoint in the course in use.

2. Select the Type; Fixed, Floater or Origin.

3a. For Fixed and Origin types, enter the Latitude and Longitude or press Here.

3b. For Floater types, enter the Range and bearing, and whether it's referenced from the course origin (the Origin Mark), or the previous mark. If you want the range to scale when the course is selected, select Scale Range. If you want the bearing to turn with the course orientation, select Rel W/Leg.

4. Press the Icon box to select the desired graphic.

5. Press Save.

Course Info

The Course Info dialog displays a list of the legs of the current course showing the estimated leg time and the total elapsed time for the race. The list shows the Rhumbline, Earth-true wind Etrue (which is back-calculated from instrument readings of water-true and current), Current, leg wind (apparent or true) and leg times, which can be elapsed, cumulative or real-time. The Etrue and Current values can be changed to display a "What if?" scenario.

The graphic at the top of this page demonstrates such a scenario where the wind is predicted to increase from the present 9.1 knots to 14 knots during the race (the red Etrue speeds). To do this, you use the Smear button after setting up as follows:

1 Select the last leg by clicking on line 6 of the listbox.

2 Select EwindSpd radiobutton

3 Enter 14 in the edit and press Set. The end conditions for a smear are now set.

4 Select rows 1 through 6 (thus selecting a starting Etrue windspeed of 9.1 ending at 14). The Smear button is enabled when 3 or more consecutive rows are selected.

5 Press the Smear button.

Pressing Reset removes all what-if settings and restores the Etrue and Current values to the present conditions.
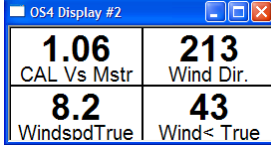
Display

Turns your screen -or a portion of it - into Ockam displays; typically one would view 4 or 6 functions, but you can have up to 16 if you wish.

6.70	212	11.7	6.41
Boatspeed	Wind Dir.	WindspdTrue	Target 037

OS4 Display #1

1.06	213
CAL Vs Mstr	Wind Dir.
8.2	43
WindspdTrue	Wind< True

OS4 Display #2

Changing an item Click on the desired item, select the new function and press OK.

Adding an item Click on the desired item, select the new function and press Add. The new pane goes where you originally clicked, and the rest are moved down/right.

Moving an item Click on the desired item, change the Position number and press Move.

Deleting an item Click on the desired item and press Delete.

Closing the display Press the close box (**X**) in the upper right corner.

Adding a display Click on any item and press New. Then change the location and size to suit.

See Unlocking your software for how to enable Display.

Stripchart

The Stripchart Application displays up to 6 pages each containing between 1 and 4 stripcharts. Each page has a common time base between 10 minutes and 3 hours in length, and selectable variables showing minimum, maximum and average values.

To change the contents of a stripchart page;

1. Press Prev or Next to find the desired page.

2. To add a strip to the page, select the desired function from the list and press Add in the Strip group.

3. To delete a strip, select the strip from the Chrt # list and press Delete in the Strip group.

4. To change the function of a strip, select the strip from the Chrt # list, then select the new function from the function list.

5. To change the foreground color of a strip, select the strip from the Chrt # list and press the color button.
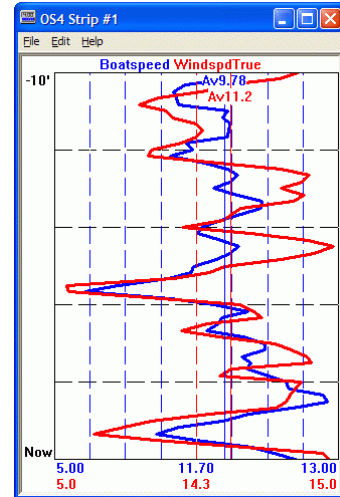
You edit a copy of the entire stripchart setup (pages, strips and their associated functions). Pressing OK copies the edit setup to the stripchart window, while Cancel just returns.

See Unlocking your software for how to enable Stripchart.

Eye

The Ockam Eye system enables PDAs to affordably and <u>wirelessly</u> display and control your instrument system from the rail. The Eye PDA application

- Provides up to 20 pages of numeric or graphical information. Each page can contain up to 8 numeric or 4 graphical items.

- Full instrument control is available.

- Designed for finger-only operation. Setup and some system control functions involving keyboard input may require the stylus.

- Any number of PDAs can be used with the Eye system, but each PDA requires a separate unlock code.

The Eye is compatible with <u>all</u> Ockam instrument systems.

Theory of operation

The Eye system consists of 2 software components, designed to work with 4 major pieces of user-supplied hardware.

- A source of serial instrument data. This is provided by the Tryad T1 processor, or an 050 RS-232 interface attached to an 001-based Ockam system.

- A Laptop or PC with serial and Ethernet ports, and running Windows XP, and the ***OckamSoft 4 EtherServer component***. In addition to providing Ockam services on the PC, the server converts between serial data and Ethernet packets, thereby connecting the wireless PDA to the instrument system.

> Laptops with proper built-in serial ports are becoming rare.
> The usual fix is to use a USB serial port, but this adds
> a certain amount of uncertainty to the game.
> It is worth trying to find a laptop with a REAL serial port.

- A wireless Cable/DSL router. This device performs two functions. The radio connects the Ethernet (wired LAN) to the wireless devices, and the internal software provides configuration information (DHCP) to all attached devices (wired and wireless).

- A Pocket-PC 2002 PDA with wireless LAN, running the ***Eye software component***.

Instrument data moves from the instrument system into the serial port on the PC, where the ***EtherServer*** converts it to UDP packets and <u>broadcast</u>s them over the Ethernet connection to port 5005 (or as set). The router launches these packets over the radio to the PDA. Thus, any device connected to either the wire or the radio, and configured to receive UDP broadcast on port 5005, will receive Ockam data.

If the PDA wants to send something to the instrument system, it sends a UDP packet to the PC IP address, port 5006 (or as set+1). The ***EtherServer*** converts these packets to serial form and forwards them to the instrument system.

Installation

This system relies on several components not under Ockam's control. In addition, wireless LAN technology is young, and experts are rare. In the world of IP, Ockam is NOT an expert.
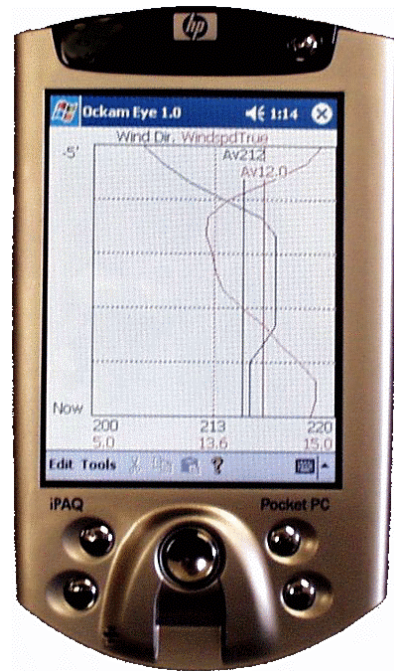
<center>Stick to the path or the bears may get you.</center>

1   Be sure your laptop/PC operates correctly with an Ethernet LAN using TCP/IP. It should be set up to use DHCP to obtain an IP address automatically. If you are unsure, you should take your PC and your DSL router to your dealer and have him configure them for you.

2   Install the PDA support on the laptop, including ActiveSync. These functions allow you to load the Eye software.

3   Connect the components as shown. The PC should be connected to the router's local side (usually numbered), not the "WAN" or the "Uplink" connectors. Install the ***OckamSoft 4 Eth-erServer*** on the Laptop/PC.
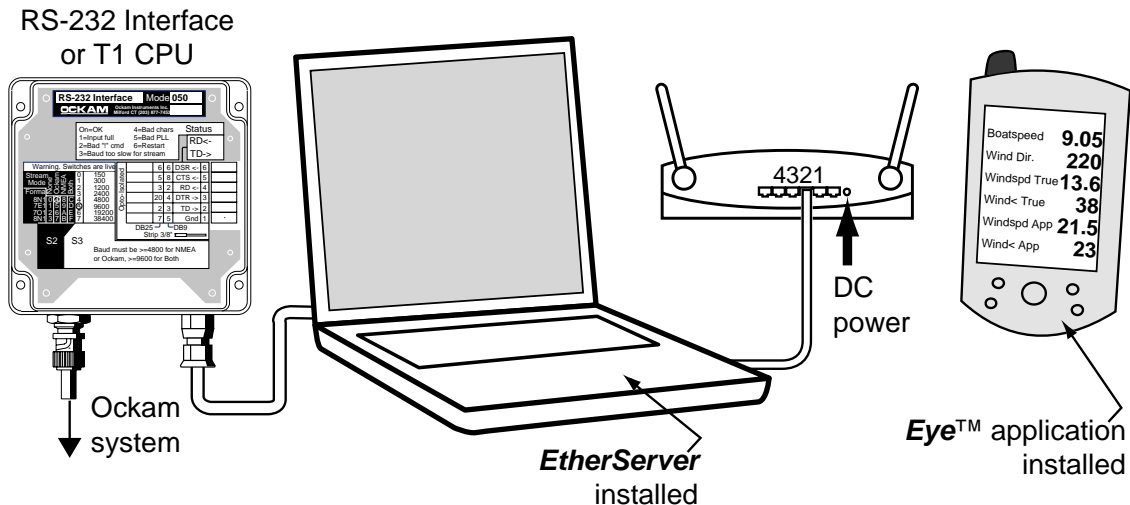
4   Follow the manufacturer's instructions for configuring the DSL router. Note the following:

- WAN connection type should be DHCP (Obtain an IP automatically).

- The radio should be enabled.

- Set the SSID to a unique string, say your boat name. Enable "SSID Broadcast" until the system is running well, and then disable it.

- Don't enable WEP security until everything is working well.

5   Configure your PDA's WLAN.

- Mode should be "Infrastructure" vs. "Ad-Hoc". This means "talk to the router instead of each other".

- Set the SSID to the same string as the router (see above).

- WLAN enabled (usually confirmed by an LED being on).

- WEP security disabled (see above).

6   Install the ***Eye software component*** on the PDA.

7   Start instrument data flowing, and confirm its arrival on the PDA.

1. On the PC, start the driver. If no shortcut has been provided, double-click OS4DRV.EXE located in the windows directory. A small icon should appear in the "tray", the area in the lower-right where the clock is.

2. Right-click the tray icon and select "Settings", then turn the instruments on. On the "Status" tab, the "Frames received" number should count up. If not, select the "Comm

port" tab, and then the correct COM port (determined by where the instruments are plugged in), and baud rate etc. (determined by the settings of the RS232 interface).

3. If you don't have access to instruments, you can run the driver's simulator in order to provide data for the Eye setup, but eventually, you will have to do step 2 to configure the driver for your instruments.

4. Once the Status tab shows data arriving OK, click the "Variables" tab, and confirm that data is ungarbled (i.e. Boatspeed shows "0.00" etc).

5. On the "Comm port" tab, check "Enable Ockam data on Ethernet".

6. On the PDA, confirm the WLAN is up (usually some LED is on or flashing), then run the Eye application. You should be able to see instrument data.

8   How to register the ***Eye software component***.

1. You will need the PDA owner's name, the boat name the PDA make, model and serial number from the label under the battery (you should write these down ahead of time), two items from the Eye program, and a valid credit card.

2. Call Ockam (203-877-7453) with your PDA at the ready. After the other information is recorded, you will be asked to start Eye, select <u>Help>Register</u> and read off the Program Rev (a number) and the PDA ID code (an 4-4 character string). You will then receive a 6-character unlock code back.

3. Enter the registration code in the space provided, and press the OK button. If all went well, you should get a dialog box saying "Unlock code accepted. Please restart the program."

VPort

The Ockam **vPort** virtual serial port application works in conjunction with the OckamSoft 4 driver to supply NMEA data to a program which would normally be expecting direct, dedicated hardware connection to a NMEA data source (i.e. the NMEA output from a GPS).
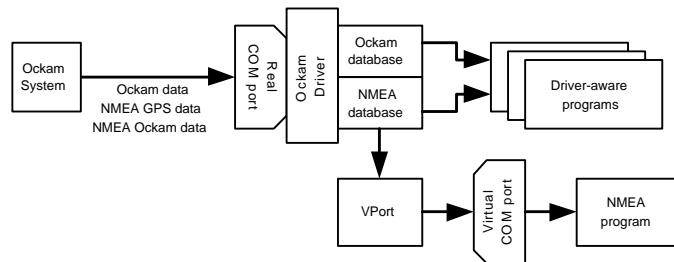
vPort:

- allows OckamSoft-aware programs to co-exist with a NMEA program without requiring multiple serial ports or bizarre splitter-cable wiring hacks. Such hacks are against spec, reduce communication reliability to both applications, and are never documented, so cannot be maintained.

- output stream includes boat-oriented data (Ockam data formed into NMEA sentences) such as depth and wind to be delivered to the NMEA application in addition to whatever the GPS is providing. This eliminates the need for NMEA "combiner boxes".

- provides control over which sentence types will be delivered to the NMEA application. This allows disabling redundant data sources, preventing the NMEA application from hopping and dithering.

- lets you to monitor individual sentence data for troubleshooting purposes.

Theory of operation

A <u>REAL</u> serial port is a combination of <u>hardware</u> (plugs, wires and ICs) and a <u>software driver</u> that lets a program running in a PC communicate with other boxes; say a GPS or an instrument system. Real serial ports are becoming rarer on laptops due to space constraints and cost (and standardization issues as well), so there is a turf war going on amongst the applications that used to have lots of easy (well, maybe possible) connections between themselves and their external data.

A <u>VIRTUAL</u> serial port is a software driver that looks exactly like a real serial port, but which is not actually attached to any real hardware. Programs can open and close a virtual serial port just like a real one, but the data which comes out of the port is already inside the PC, or comes in via some other type of connection. In the case of **vPort**, that data is part of the Ockam data stream coming in a real port, and being split out by the OckamSoft 4 driver.

The Ockam data stream can be set to include both Ockam and NMEA data, including GPS output (see the 050 RS232 and T1 CPU docuentation, "!S" command). The OckamSoft 4 driver splits these two streams into separate databases – Ockam and NMEA. **vPort** sends the driver's NMEA stream to a virtual serial port, allowing an application to operate as if it were attached to a real serial port connected exclusively to the GPS, but without the need for a second physical connection.

Installation

Because virtual serial ports are software only, they don't exist when their software isn't running. The main issue in setting up **vPort** is having the virtual serial port available and primed with NMEA data when the NMEA application runs. We're going to specify a procedure which runs **vPort** when the computer starts, thus providing the virtual port at all times.

You will be using a Windows utility called HyperTerminal to troubleshoot the various serial ports. A How-To for HyperTerminal is included below.

1 Install the *vPort* software. Don't run it yet.

    a   By default, the following files are installed in c:\Program Files\OckamSoft 4\vPort:

- VPort.exe   The main *vPort* program
- ResetBus.exe   Stand-alone version of the *vPort* reset button.
- Vsb.inf   Info file for installation of the virtual serial bus driver.
- Vsb.sys   Virtual serial bus driver.
- Vsbsetup.exe   Installer for virtual serial bus driver.
- Vserial.inf   Info file for installation of the port driver.
- Vserial.sys   Virtual serial port driver.
- VSPort.ocx   Virtual serial port ActiveX control.

    b   Shortcuts to VPort.exe are placed in the Startup folder (to automatically start *vPort* when the computer boots: see <u>Operation</u> below for why), OckamSoft 4 group, and the desktop.

2 Establish the REAL port and settings on which the instruments are communicating.

    a   If you're using a USB serial port, be sure it's connected. Also be sure your instruments are connected to the serial connector and turned on.

        Ensure that the OckamSoft driver is NOT running. Look in the tray (area lower right where the clock shows) for the OckamSoft ![icon] Icon. Be sure to press that little (<) button to look in the hidey place. If it's there, right-click and <u>Exit</u>.

    b   Start HyperTerminal (see below), and find the instrument data stream. Note that Ockam data is single letters (e.g. 'B' for boatspeed) followed by a numeric field (e.g. '5.88').

```
0M06.64B5.88V4.2b5.16U148f-4.93P6.07y2.2Y-0.3%36.8,
1B5.85X'33.697820X-118.238097r'1.84y2.2Y-0.2#7.7,
2B5.84b5.17F'0.41O217p7.33:24:6.0y2.2Y-0.2%36.8,
```

        <u>Note the instrument port settings (e.g. COM5, 9600,8,N,1).</u>

    c   Confirm that the connection is two-way. Press Enter a couple of times, then type **U0=aaaaaaaaaaaaaaa** and Enter. You should see the user string amongst the Ockam data

```
0M06.64B5.88V4.2b5.16U148f-4.93P6.07y2.2Y-0.3%36.8,
1B5.85X'33.697820X-118.238097r'1.84y2.2Y-0.2#7.70aaaaaaaaaaaaaaa,
2B5.84b5.17F'0.41O217p7.33:24:6.0y2.2Y-0.2%36.8,
```

3 Check that NMEA data stream is available.

    a   Check that your GPS is on and working.

    b   Type **!S2** and press Enter. This disables Ockam and enables NMEA data. You should be seeing NMEA sentences. Note that NMEA sentences always start with '$', then 5 letters and a comma (e.g. '$GPGGA,'), then several fields separated by commas.

```
$GPGGA,194056,4000.000,N,05000.000,W,0,0,00,+0050,M,-034,M,,0000
$GPRMC,194057,V,4000.00,N,05000.00,W,000.0,000.,100703,,*22
$GPGLL,4000.00,N,05000.00,W
$GPVTG,000.0,T,,,000.0,N,,
```

    c   If you're not getting anything, try **!S2** a couple of more times. If nothing happens, either the GPS is not outputting, or the GPS interface is disabled.

        If the processor is a Tryad T1, lack of NMEA data indicates the GPS is not outputting. Check the GPS light on the status panel.

If the processor is 001, you must enable the 041 GPS interface to output to the NMEA channel by setting (see the system manual, section 5.xx).

4   Set the instrument system to deliver the combined Ockam and NMEA data stream.

a   Type **!S3** and press Enter. You should be seeing NMEA sentences intermixed with Ockam data.

```
0M06.64B5.88V4.2b5.16U148f-4.93$GPGGA,194056,4000.000,
N,05000.000,W,0,0,00,+0050,M,-034,M,,0000P6.07y2.2Y-0.3
%36.8,
1B5.85X'33.697820X-118.238097$GPRMC,194057,V,4000.00,N,
05000.00,W,000.0,000.,100703,,*22r'1.84y2.2Y-0.2#7.7,
2B5.84b5.17F'0.41O217p7.33:24:6.0$GPGLL,4000.00,N,05000.00,
W y2.2Y-0.2%36.8,
```

b   If you haven't yet saved the HyperTerminal session, do so now (say as 'Ockam.ht'). Then close the connection (Call Disconnect). Don't quit HyperTerminal: you will be using it again later.

5   Run the OckamSoft 4 driver and establish a connection with the instruments.

a   Installation should have put an OckamSoft 4 group in the All Programs section of your Start menu. Select the Run OS4 EtherServer link, then find the OS4 icon in the tray (see step 2a above), right-click and select Settings.

Select the Comm port tab and check that the settings are the same as those established in step 2b. Only check Use frame checksum if you know you need it, and only check Limit output if your RS232 interface is black. Also be sure the Enable NMEA input checkbox is checked. The Ethernet settings are used by the Eye application.
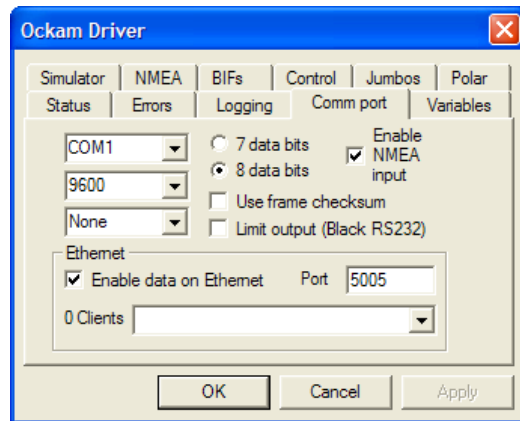
b   Check that data is coming in (Status tab, Frames received counting up).

c   Check that NMEA data is coming in (NMEA tab, press Recent and the most recent sentences should show).

6   Run *vPort* and set it up.

a   Select the Run vPort link from Start menu/All Programs/OckamSoft 4 group.

b   Check the list of NMEA sentence types. The value window should show the current value for each NMEA sentence.

c   Check the range of ports that can be selected in your NMEA application. Don't open any port yet. Ports COM1 to COM4 are always selectable, but you might check to see if the application can go to COM8 or even COM16.

d   Pick an appropriate port from the Virtual serial port droplist. Note that the missing COM ports are real ones, and therefore not available to virtual ports.

e   Bring up HyperTerminal (it should be disconnected). File, Properties, set Connect Using to the port selected in (d) and OK (because there is no hardware, the port settings aren't important). You should be getting NMEA data.

f   Disconnect and save the session as e.g. Vport5.ht. Close HyperTerminal.

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g   Start your NMEA application and open the port set in (d). The application should now be receiving NMEA data. This completes the setup.

7   To register **vPort**.

a   If there is no Register button, **vPort** is already registered.

b   Press the Register button. Note the VPort rev and Uplink code.

c   Call Ockam at (203)877-7453 to obtain an Unlock code.

d   Enter the unlock code in the text box and press OK.

e   If registration was successful, you well be asked to restart vPort.

> NOTE:
> If you remove or replace any Ethernet or WiFi devices on your computer, your **vPort** may revert to demo mode.

Operation

This screen shot shows that **vPort** is making virtual port COM5, the NMEA application has it (Open), NMEA sentence type 'GGA' is enabled, our position is 40 North by 50 West (I wish!), startup at boot time is enabled, and, so far, 226 sentences have been transferred.

And, by the way, the program is operating as a demo, and after 5 minutes, data will stop flowing. After you register (see Installation step 7), data is not stanched.

Because its virtual serial port only exists while it runs, you must start **vPort** BEFORE you start your NMEA application, so the port will be there when the NMEA application tries to open it.
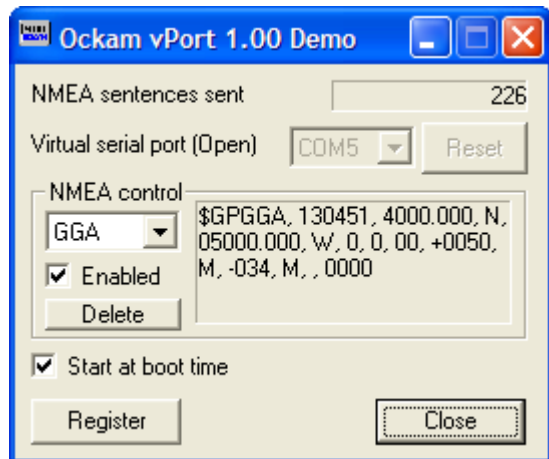
Similarly, you can't close **vPort** before closing the NMEA application, because that would "pull the code out from under" the serial port which the NMEA application has open.

For these reasons, setup installs a link in your start menu that runs **vPort** when you boot your computer. When it starts at boot time, if Start at boot time, is not checked, it immediately quits.

- To disable **vPort** from starting at boot time, uncheck Start at boot time and press Close.

- To re-enable **vPort** at boot time, run Program Files\OckamSoft 4\vPort\vPort.exe, check Start at boot time and press Close.

vPort Controls

NMEA sentences sent

   Troubleshooting aid: number increments when a NMEA sentence passes through to the NMEA application. Virtual serial port must be (Open), and at least 1 NMEA sentence type must be enabled and being sourced by the GPS.

Virtual serial port (Closed)

   No application is using the indicated virtual serial port. You can select the serial port to "create" over which data will be sent to your NMEA application.

Virtual serial port (Open)
Indicates that some application is using the indicated virtual serial port. Until the port is closed, you can't change the port or exit **vPort**.

Reset button (only enabled when Virtual serial port is <none>)
Used to recover hanging virtual ports. See Troubleshooting – Resetting virtual ports below.

NMEA type droplist [GGA]
Selects which NMEA sentence type will be shown in the adjacent text area and Enabled checkbox.

Enabled checkbox
Controls whether or not the NMEA sentence type will be passed on to the NMEA application.

Delete button
Since **vPort** remembers all NMEA types it has encountered, it's possible that some of the types in the droplist are no longer valid. If this is the case, the text area will not show real NMEA data. If you're pretty sure the type is obsolete, press the Delete button to remove that type from the droplist. This is not dangerous, because if the type is being currently provided, it will be immediately replaced in the list.

Start at boot time checkbox
Controls whether **vPort** starts automatically when the computer boots up (recommended).

Register button (Disappears after **vPort** is successfully registered)
See Installation for proper use.

Troubleshooting – resetting virtual ports

You may get a message from your NMEA application complaining that it can't open the virtual port. When you bring up **vPort**, you notice that the Virtual serial port shows <none>, and the normal port doesn't show in the droplist. This can be caused by improperly shutting down the system, leaving a virtual port open.

To recover (reset) all virtual ports:

1 Close the NMEA application.

2 Set the **vPort** Virtual serial port droplist to <none>.

3 Press the Reset button (all hanging virtual ports will be closed, and the droplist will be re-loaded).

4 Set the Virtual serial port droplist to the port normally used by the NMEA application.

5 Restart your NMEA application.

NMEA Translator

The Ockam **vPort** virtual serial port application works in conjunction with the OckamSoft 4 driver to supply NMEA data to a program which would normally be expecting direct, dedicated hardware connection to a NMEA data source (i.e. the NMEA output from a GPS).
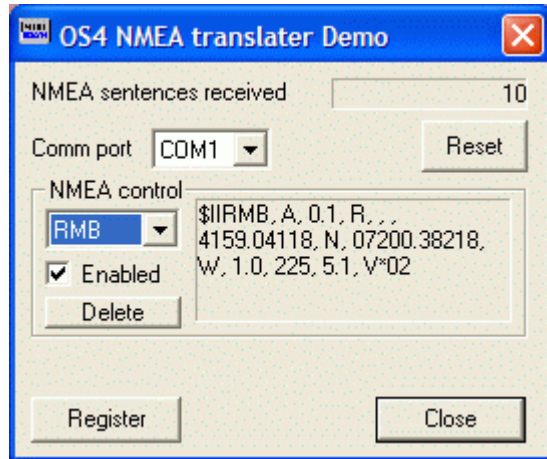
OS4 EtherServer Driver

The OS4 driver

- Simplifies the process of obtaining Ockam system data.

- Sends commands from programs to the Ockam system.

- handles the incoming data from the instrument system and controls the logging setup of OckamSoft 4. The Driver is automatically loaded when other modules are launched.

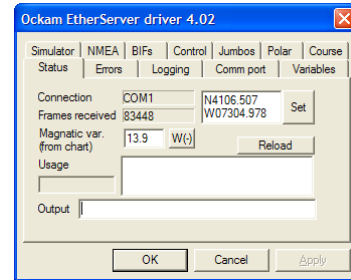Controls instrument system averages, calibrations, options, and the Built in Functions or BIFs (special functions like course to steer for best VMC, Wally, and Next Leg Apparent that are calculated in OckamSoft).

Simulator   Provides simulated instrument data for practice and setup.

Ockam Driver

The Ockam driver provides instrument related services to OckamSoft and other applications needing instrument data. Services include buffered input and adjustable history, variable definition, buffered NMEA data and data logging. The driver connects to the instrument system via Windows' standard COM driver.

Hint: Copying the Driver icon into the Windows StartUp program group will automatically activate the driver, and start logging information as soon as you run windows.

The driver consists of two components: OS4Dll.dll, the server library, and OS4Drv.exe, the companion application that provides the connection to the serial port, and a modeless dialog that provides manual control of the driver functions. These two components are installed in the windows directory.

The driver provides the following services:

- Latest instrument data pigeonholed by tag.

- Output to the instruments.

- Database of definitions for instrument data including temporary redefinition. Modifiable by hand or API call.

- Memory-resident history of instrument data. Adjustable for length and rate.

- Database of instrument error codes. Can be filtered for current or ever.

- Memory-resident history of position fixes with time tags, including bounding box.

- Memory-resident history of NMEA sentences.

- Latest NMEA sentences pigeonholed by type.

- Windows notification of time tick, position update, change in variable definition, new instrument value and NMEA sentence, stopwatch activity and tack/jibe.

- Automatic or manual logging to disk.

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Logging Data

In OckamSoft 4, logging is performed by the Driver, which is available whenever any component is running (look for the OckamSoft Driver icon at the bottom right of your screen. Log files are binary fixed-length format and are named mmddhhmm.OSL (month, day, hour and minute of the starting time) and are logged to your \OckamSoft 4 directory.

There are two types of log records; Main and User. The Main record is logged at a time rate you specify (every so-many seconds), and the User record is logged once per so-many Main records (User records are intended for items which don't have to be logged as often as Main record items, although a Per of 1 logs a User record with each Main).

The Main log record contains 9 fixed items: Time, Position, Boatspeed, Heading, Heel, True Wind Speed, Wind Direction, Apparent Wind Speed and Angle. Two additional items can be user defined. The User log record has room for up to 13 additional items you can define.

Comment records can also be added by typing into the Comment edit of the main dialog of the Driver.

Variable definitions (VarDats), calibration values and active error codes are also logged into the header section of log files at start time.

To start logging:

1. Start the driver (Start, OckamSoft 4, Driver), then double-click the icon to see the tabbed dialog. Select the Logging tab.
2. If you haven't yet set up for logging, press the Setup button.
   a. Add items to the Main/User-defined variables by selecting the item from the dropdown list and pressing Add or delete items by selecting it in the variables list and pressing Delete.
   b. Enter the number of seconds in the Main Rate edit. (The items in the Main/Automatic Variables and Main/User-defined variables lists will be logged every Main/Rate seconds).
   c. Repeat for the User group. Enter the number of Mains per User in the Per edit (e.g. if the Main Rate is 10 (seconds) and the User Per is set to 3, the User group will be logged once every 30 seconds).
   d. If you were logging when you entered setup, the Restart Log on exit will be checked. If this item is checked, the previous log (if any) is stopped and a new one is started immediately when you press OK.
   e. If you want to log automatically, you can check the Start log when driver loads item. This enables logging as soon as the driver loads.
3. Click on the Logging checkbox to start and stop logging.

Unlogging

To convert from OSL files to usable output, run the Delog application (in the OS4 program group). This application allows you to select from the logged information and output it to an Excel spreadsheet (or in text form (CSV file) for other purposes).

By the way, DELOG can access the current OSL file while it is being loggged. This allows you to create output (graphs etc.) in near real-time.

To create a spreadsheet:

1. In the File Information group, select the desired file. It will automatically load and be scanned for comments. The Reload button reloads the selected file (used when the current file is being delogged).

2. Select the desired log items by moving them from the File Information list box to the export variables list box (>sel inserts the variable at the export selection while >end appends the variable).

3. You can review the comments (if any) in the Comments group by pressing < and >. St sets the time of the current comment to the Export Start time control.

4. Set the desired start and length parameters.

5. Select column headings (Names are like "Boatspeed" while Symbols are like "Vs").

6. Select the type of output; Excel creates an Excel4 spreadsheet while CSV creates a "Comma Separated Variable" text file.

7. Press Export and specify the filename.

Built-in Functions

The Instrument Control and Racecourse applications can display data on the instruments. Functions include

BIF 1   Polar Speed or Time to Laylines.

BIF 2   Target Speed or Target Speed+Angle (alternating).

BIF 3   Target Angle or Target Speed Upwind, Angle Downwind.

BIF 4   Wally Delta Speed.

BIF 5   Vmc Course or Course to Steer.

BIF 6   Downwind Courses or Next Leg Course.

BIF 7   Next Leg Apparent Wind.

BIF 8   Earth True Wind or Wally Average Wind Direction.

BIF 9   Cross Track Error.

Instrument Controller

This application provides a means to control the instrument system and the Polar Server. The major areas of this application are:

Built-in Functions

This group turns the various functions (instrument readouts) of data calculated in OckamSoft on and off. See Built-In Functions for descriptions of those functions. (See also User Output).

Polar

This group controls the Polar Server. The polar title and description are given in the first two text boxes. Pressing Select brings up the server's Open dialog, allowing you to switch to another polar database. The Cfg list shows the available configurations of the current data base (e.g. base, NoSpin, etc.). To create a new configuration or edit an existing one, press New and fill out the configuration dialog.

Instrument control

Allows setting of calibrations, options and resets of the instrument system. See below for lists of these functions. See also Instrument Commands.

Magnum Group Set

This group allows you to set all Magnum displays to a given configuration. Select the desired configuration from the list and press Send. To return all Magna to their switch settings, press Default. If you want to change an existing configuration or add a new one, press Edit. (See also Display Remote control).

Magnum Set

This group allows you to change an individual Magnum display. Select the desired Magnum from the first list and the desired function from the second. Press Send to change the display to the selected function. You can change the display text line by typing in the text and pressing Text. If you want the text to stay on the magnum through changes in function, check Keep Text... To add, edit or delete a magnum, press Edit.

Direct command

To send commands to the instrument system, type the command text into the Direct Command text box and press enter (see Instrument Commands).

Instrument Options

Time format	Display time as hh:mm, mm:ss or hh:mm:ss
Pol/Tgt Fmt	Display Polars & Targets as Knots, Difference or percent
Select Polr	Specify which polar in interface to use
Wind Twist	Compensate for wind shear by offsetting Wind Direction
REEF param	Modify upwash (see the Ockam Instrument manual)
FLAT param	Modify upwash
GPS/Cur Ctl	Enable/Disable instrument GPS & Current calculations
Mast Height	Enter mast height for roll rate correction
Light Level	Change the Magnum lighting intensity
Vmc/CogSog	Select Vmc or CogSog display
Vmc rhumbln	Enter rhumbline for Vmc display
Units	Set instrument units: Feet/Meters, °F/°C and InHg/Millibars
Set Current	Manually set instrument Current
Set Waypt	Manually set instrument Waypoint
SetInstTime	Set the Ockam clock

Instrument Calibrations

Boatspeed Master	Changes the boatspeed on both tacks
Boatspeed Offset	Changes the boatspeed from tack to tack
Leeway	Sets the leeway factor
A. W. Ang Offst	Changes the apparent wind angle zero
A. W. Speed	Changes the apparent wind speed
Upwash	Changes the full-scale upwash
Mag Variation	Changes the magnetic variation
Polar	Changes the Polar & Target speeds

Instrument Resets

StpwchOnOff	Starts or stops the stopwatch.
StpwchReset	Sets the stopwatch initial time or synchs to the nearest minute.
BackR/Brset	Resets the instrument Back Range & Bearing function.
TripLog Rst	Resets the instrument Trip Log function.
DLVs Reset	Resets the Distance Lost Boatspeed function.
DLVmg Reset	Resets the Distance Lost Vmg function.

Instrument Averages

Boatspeed	True wind speed and angle for Polars
Apparent Wind Speed and Angle	Polar and Target Speed
Heel Angle	Wind Direction
True Wind Speed and Angle	Layline solution
Vmg	Roll Rate
DLVS and DLVmg basis average	Heading
Wind direction	Vmc
Port & Starboard layline courses	Barometric Pressure
Boatspeed and true wind angle for Laylines	

Select one of the above functions in the Inst. Control frame, fill out the Value if necessary, and press Execute.

Polar Server

The Polar Server provides polar information (Boatspeed and angle versus true wind) and sail range data. The standard driver (PLRSVR.DLL) supplied with OckamSoft uses a static polar database that includes windweight and calibration controls. Some VPP services can supply a server that has shear, gradient, crew and configuration controls as well.

Polar Conversion

The standard Polar Server supplied with OckamSoft uses the Ockam ESP binary polar file (*.TPO). This file contains static speed and angle data derived from the Velocity Prediction Program ("VPP") which is part of the IMS rating system.

If the polar data is supplied as a worksheet (WKS or WK1 file), you can use the CVTPO utility to convert the worksheet to a TPO file. You can also use this utility to convert a TPO file to a WKS file for plotting or modification and subsequent re-conversion to TPO form.

To convert from one form to the other, execute CVTPO (located in your \OS4 directory), and:

1. Press the Browse button to select the source data. The standard windows file opening dialog appears.

2. Select the origin form (Polar worksheet or Polar binary) in the List Files of Type dropbox.

3. Select the source file and press OK.

4. CVTPO reads the source file and creates a suggested output filename of the opposite type.

5. Press the Convert button to create the output file.

6. Press Quit to end CVTPO.

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Simulator

The Simulator works in conjunction with the Ockam Driver to provide simulated input to Ockam-Soft and any other application using the driver. The Simulator sails around and around the last saved course in use by OckamSoft.

Goodie bag

Here is where various support applications are described.

CVTPO.Exe   Converts Ockam polar files between .WKS and .TPO types.

WKS files can be opened, read and modified with a spreadsheet program, and target angles can be appended with the FitVmc.Exe program.

TPO files are quick-loading versions of WKS files that are expected by OS4, Tryad and ESP software.

Delog32.Exe   Converts OS4 log files (created by the driver) into the CSV format, suitable for loading into a spreadsheet.

Appendix

Using HyperTerminal

To start HyperTerminal and connect to the instrument input:

1 Press <u>Start</u>, then select in turn <u>All Programs</u>, <u>Accessories</u>, <u>Communications</u>, <u>HyperTerminal</u> (the program, not the folder). Cancel the "Connection Description – New Connection" dialog box. Then <u>File</u>, <u>Open</u> and see if there are any session files available, possibly for your instruments (named maybe Ockam). If there is, select it and proceed to step 6. If there isn't, create a session as follows:

2 <u>File</u>, <u>New Connection</u>. Enter <u>Ockam</u>, select an Icon, and OK (<u>Connect To</u> dialog appears).

3 Ignore <u>Country</u>, <u>Area code</u> and <u>Phone number</u>. Press <u>Connect Using</u> droplist and note the COMx names there. These are your REAL COM port(s), (and possibly a virtual port). Select the port you think the instruments are connected to and <u>OK</u> (<u>COM Properties</u> dialog appears).

4 Set Bits per Second=<u>9600</u>, Data Bits=<u>8</u>, Parity=<u>None</u>, Stop Bits=<u>1</u>, Flow Control=<u>None</u> (these are default values: your system may be set to some other settings: refer to the Ockam System manual RS232 interface settings) and <u>OK</u>.

5 Check that the connection is open (the phone icon with the lifted handset (#4) is enabled – or menu <u>Call</u> <u>Connect</u> is gray). You should see Ockam data stream by (numbers and letters – no smiley-faces or hieroglyphics).

```
0M06.64B5.88V4.2b5.16U148f-4.93P6.07y2.2Y-0.3%36.8,
1B5.85X'33.697820X-118.238097r'1.84y2.2Y-0.2#7.7,
2B5.84b5.17F'0.41O217p7.33:24:6.0y2.2Y-0.2%36.8,
```

6 If you get nothing, <u>Call</u>, <u>Disconnect</u>, then <u>File</u>, <u>Properties</u>, <u>Connect using</u> <some other choice>, then <u>Call</u>, <u>Connect</u>. Return to step 5.

7 If you get junk, return to step 4 and try other settings; some combination of <u>Bits per Second</u> of 9600 or 4800 and <u>Data bits</u> of 8 or 7 are most likely.

8 Once you have a good connection going, save the session. Do <u>File</u> <u>Save As</u>, and possibly rename the session.

9 Write the port (e.g. COM1), baud rate (e.g. 9600) and data bits (e.g. 8) down someplace for handy reference.

Example files

DRVTST.XLS Example Excel 5.0 Worksheet interface to the Driver and Polar servers. Demonstrates how to call the Driver from Excel.

DLWPTS Example VB3 application to download waypoints from GPS (requires 050D RS-232 interface).

NMEA Example VB3 application to play with NMEA functions of the Ockam Driver (requires 050D RS-232 interface).

List of Files

Main application files in OckamSoft 4 (or specified directory)

OS4Race. exe	The racecourse application.
OS4Dspl.exe	The instrument display application.
OS4Strip. exe	The stripchart application.
NMEAxlt. exe	NMEA -> Ockam converter, drives OS4 from a GPS.

OS4Help.hlp	OckamSoft 4 Help (this file).
OS4.pdf	OckamSoft 4 manual
Ockam37.tpo	Sample polar file.
OS400.rtf	Readme file..

Eye PDA application files in OckamSoft 4\Eye

Eye.pdf	Eye manual.
BuildBat.exe	Setup file: creates InstallEye.bat.
Eye.ico	Eye icon.
HowTo.pdf	Installation cookbook.
Eye.ini	Eye download files (3)
Eye.PPC3_CEF.Cab	
Eye.PPC3_CEF.Dat	
InstallEye.bat	Invokes ActiveSync to download Eye to the PDA.

VPort (virtual serial port) files in OckamSoft 4\vPort

NOTE: Only compatible with Windows XP/2000.

VPort.pdf	Vport manual (loaded for all OS's).
Vport.exe	| Virtual serial port components (7)
Vsb.inf	|
Vsb.sys	| (These files will not
VsbSetup.exe	| be installed if
Vserial.inf	| the operating system
Vserial.sys	| is <XP/2000)
VSPort.ocx	|
ResetBus.exe	Resets hung virtual serial ports.

Auxiliary files in OckamSoft 4\Goodies

| Delog32.exe | Converts log files into spreadsheets |
| CVTPO.exe | Converts polars between TPO and WKS flavors |

Application files added to \WINDOWS (or \WINNT)

OS4Dll.dll	The Ockam Driver Server library.
OS4Drv.exe	The Ockam Driver application.
OS4BIF. dll	The built-in functions library.
MAP3. dll	The chart interface library.
OS4Util. dll	The common functions library.
Polar. dll	The Polar server library.

Application files added to \WINDOWS\SYSTEM32

Certifct.dll	Nadcon.dll	The MapTech chart access libraries.
Datums.dll	PICN13.dll	
Jpeg6.dll	PICN13D. dll	
KAP.dll	PICN13N. dll	
Mtlib.dll	PICN2113.dll	
MTLS.dll	Proj.dll	
MTsdk.dll	TIFF60mt.dll	
MTsdkN.dll		

Shortcuts

In Start Menu/Programs Menu/OckamSoft 4

Driver	Starts the OS4 driver (located in Windows)
Racecourse	Starts the racecourse app
NMEA translator	Starts the NMEA input application
Display	Starts an instance of the display app.
Stripchart	Starts an instance of the stripchart app.
MultiStart (Setup)	Runs the OS4Start allowing changes to settings.
MultiStart (Execute)	Runs MultiStart using presets.
VPort	Starts the virtual comm port
Download Eye	Invokes ActiveSync to download Eye to the PDA

<u>On the Desktop</u>

Start OS4	Runs MultiStart using presets.

Registry entries

HKLM\Software\Ockam	Dir=C:\Program Files\OckamSoft 4 (default)
HKCU\Software\Ockam*	Settings for OS4
.OSL	File extension for OS4 log files (links to Delog32.exe)
.TPO	File extension for OS4 polar binary files (links to CVTPO.Exe)